SECTION 9-16, FENCE AND GUARDRAIL
August 4, 2003

9-16.2(3) Wood Fence Posts and Braces

This section is revised to read:

Douglas fir, Western red cedar, hemlock, or larch shall be used in the construction of wood fence posts and braces. The material shall be of good quality and approved by the Engineer before use. Peeler cores shall not be used for round posts. Wood fencing materials with the exception of Western red cedar, shall have sufficient sapwood in the outer periphery to obtain the specified penetration of preservative. Western red cedar will not require preservative treatment. Fencing materials shall be cut to the correct length before pressure treatment.

Line posts shall be 3-inch minimum diameter round posts or nominal 3-inch by 3-inch square sawed posts. If the posts are to be pointed for driving, they shall be pointed before treatment. Line posts shall be at least 7 feet in length.

Pull posts and brace posts shall be 6-inch diameter round posts or nominal 6-inch by 6-inch material not less than 7 feet in length.

End, gate, and corner posts, and posts at an intersecting fence shall be 6-inch diameter round posts or nominal 6-inch by 6-inch material not less than 7 feet 10 inches in length.

All sawed posts and timbers shall meet the requirements in the table under Section 9-09.2.

The preservatives used to pressure-treat wood fencing materials shall meet the requirements of Section 9-09.3.

The retention and penetration of the preservative shall be as follows:

Minimum Retention in Pounds Per Cubic Foot

Preservative	Sawed Posts	Round Posts
Creosote	10.00	8.00
Pentachlorophenol	0.50	0.40
ACA	0.40	0.40
ACZA	0.40	0.40
ACQ	0.40	0.40
CCA	0.40	0.40

Minimum Penetration

for material 5" or less - 0.40 inches penetration and 90% of sapwood
for material 5"or greater - 0.50 inches penetration and 90% of sapwood

9-16.3(1) Rail Element

The first paragraph is revised to read:

The W-beam or thrie beam rail elements, backup plates, reducer sections, and end sections shall conform to “A Guide to Standardized Highway Barrier Hardware” published by AASHTO, AGC, and ARTBA. All rail elements shall be formed from 12 gage steel except the thrie beam used for bridge rail retrofits, Design F end sections, and the reducer sections, which shall be formed from 10 gage steel.

9-16.3(2) Posts and Blocks

This section is revised to read:

Posts and blocks may be of creosote treated timber, pentachlorophenol treated timber, waterborne, chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or ACQ treated timber or galvanized steel; except only treated timber posts and blocks may be used for weathering steel beam guardrail. Blocks made from alternate materials that meet the NCHRP Report 350 criteria may be used in accordance with the manufacturer's recommendations. Except for terminal or anchor assemblies, all posts for any one project shall be of the same type (wood or steel). Posts and blocks shall be of the size and length shown in the Plans and meet the requirements of these Specifications. Posts and blocks may be S4S or rough sawn.

Timber posts and blocks shall conform to the grade specified in Section 9-09.2, except pine lumber No. 1 grade may be used for the blocks. Timber posts and blocks shall be fabricated as specified in the Plans before being treated. Timber posts and blocks shall be treated by the empty cell process to provide a minimum retention, depending on the treatment used, according to the following:

Creosote oil	12.0 lbs. pcf.
Pentachlorophenol	0.60 lbs. pcf.
ACA	0.50 lbs. pcf.
ACZA	0.50 lbs. pcf.
ACQ	0.50 lbs. pcf.
CCA	0.50 lbs. pcf.

Treatment shall be in accordance with Section 9-09.3.

Steel posts, blocks, and base plates, where used, shall conform to ASTM A 36, and shall be galvanized in accordance with AASHTO M 111. Welding shall conform to Section 6-03.3(25). All fabrication shall be completed prior to galvanizing.

9-16.8(1) Rail and Hardware

The second sentence in the first paragraph is revised to read:

Bolts, nuts, and washers for installation of weathering steel shall meet the requirements of Section 9-16.3(4), and be galvanized in accordance with Section 9-16.3(3).